

REMARKS

These remarks are responsive to the Office Actions dated October 2, 2001 in which claims 16-21 are rejected.

The Examiner rejected claims 16, 17 and 21 under 35 USC 103(a) as being unpatentable over Yoshikawa in view of Aulanko et al. and Kershaw et al.

The Examiner cited Yoshikawa for teaching a car, at least one elevator door on the front face, first and second sheaves disposed to the first and second sides of the door opening, a rope forming a closed loop around the sheaves wherein the door is attached to the rope and a drive motor on the front portion of the car coupled to the elevator door. The Examiner cited Aulanko et al. as teaching a flat motor integrated into a sheave and further states that it would have been obvious to one of ordinary skill in the art to modify the apparatus of Yoshikawa by adding the flat motor onto one of the sheaves shown in Aulanko et al. The Examiner further cites Kershaw et al. as teaching a geared flat motor where the gear is drivingly coupled to the sheave. The Examiner states that it would have been obvious to one skilled in the art to further modify the apparatus of Yoshikawa by using the motor of Kershaw et al. in order to reduce the size of the motor to make the required torque.

Applicants respectfully disagree because there is no motivation to modify the references (MPEP 2143.01). Aulanko et al describes an elevator machinery comprising a motor and a traction sheave designed to move the elevator ropes wherein the two traction sheaves provided are attached to a rotor by means of fixing elements.

There is no suggestion by Aulanko et al or Yoshikawa that the drive system of Yoshikawa consisting of a motor, a first drive belt and an intermediate drive gear can be replaced by a flat drive motor disposed on a front portion of an elevator car and integrated one the sheaves to drive the rope which forms a closed loop around the first and second sheave wherein the door is attached to the rope. Assuming that Aulanko et al could be combined with Yoshikawa there is only a suggestion that the drive motor and intermediate gear could be replaced.

Kershaw et al teaches a double stage taumel gear reduction unit used in conjunction with a flat motor for positioning a seat back of an automotive car seat. Again there is no motivation to replace the entire drive system of Yoshikawa to arrive at the subject invention. Kershaw et al

only suggests that the motor and intermediate gear could be replaced with an integrated motor and belt driver.

For the foregoing reasons, reconsideration and withdrawal of the rejection of claim 16 as obvious over Yoshikawa in view of Aulanko et al and Kershaw et al is respectfully requested.

Since claims 17 and 21 depend either directly or indirectly from claim 16, they are patentable for the same reasons. Therefore, reconsideration and withdrawal of the rejection is respectfully requested.

The Examiner rejected claims 16, 17 and 21 under 35 USC 103(a) as being unpatentable over Yoshinobu in view of Kershaw et al. The Examiner cites Yoshinobu as teaching an elevator car having a front face, elevator doors, first and second sheaves, with a closed loop rope between a drive motor on a front portion of the car driving one of the sheaves via a pulley.

The Examiner cites Kershaw et al for teaching a geared flat motor. The Examiner states that it would have been obvious to one skilled in the art to replace the pulley driven reduction system of Yoshinobu with the flat geared reduction motor of Kershaw et al and that with respect claim 17 that Yoshinobu in view of Kershaw et al discloses a flat motor mounted on the front face of the car.

Applicants respectfully disagree because there is no motivation to modify the references (MPEP 2143.01). Fig. 6 of Yoshinobu teaches a drive motor located on the top of the car with a pulley driving a first sheave, which in turn drives a rope for positioning the doors. The first sheave appears to have gear reduction feature. The combination of Yoshinobu and Kershaw et al would lead a replacement of the motor on top of the car and the gear reducing feature of the drive sheave. The complex taumel gear of Kershaw et al would not be more reliable or maintainable than the belt system of Yoshinobu. As stated Applicants do not agree with Examiner's assertion that Yoshinobu in view of Kershaw et al discloses a flat motor on the front face of the car.

For the foregoing reasons, reconsideration and withdrawal of the rejection of claim 16 as obvious over Yoshikawa in view of Kershaw et al is respectfully requested.

Since claims 17 and 21 depend either directly or indirectly from claim 16, they are patentable for the same reasons. Therefore, reconsideration and withdrawal of the rejection is respectfully requested.

The Examiner rejected claims 18-20 under 35 USC 103(a) as being unpatentable over Yoshinobu in view of Kershaw et al as applied to claim 17 above and further in view of Kappehagen. The Examiner states that Yoshinobu in view of Kershaw et al inherently shows the a header bracket in order to hold the drive apparatus consisting of a sheaves and a drive motor between the upper and lower edges of the car.

Applicants respectfully disagree. As discussed above Yoshinobu clearly teaches a drive motor on top of the car. Neither Yoshinobu nor Kershaw et al provide any motivation for locating the apparatus of Kershaw et al at the pulley.

The Examiner further states that Kappenhagen shows a configuration where the door hanger is located in front of the drive of the motor and that is would be obvious to one skilled in the art to further modify Yoshinobu to arrive at the subject invention.

Applicants respectfully disagree Kappenhagen clearly shows that the motor is located on the top of the car. There is no teaching or motivation to combine references to arrive the claimed invention.

As stated above, Applicants urge that claim 16 is patentable. Since claims 18 through 20 depend either directly or indirectly from claim 16, they are also patentable. Therefore, reconsideration and withdrawal of the rejection is respectfully requested.

Applicants urge that the subject application is now in condition for allowance and respectfully request withdrawal of the present rejections.

Enclosed is a Form PTO-1449 and a translation of the two Japanese references cited by the Examiner. Applicants request that the Examiner initial the PTO-1449 to indicate the translated documents have been received and considered.

Please charge any fees for this statement to Deposit Account No. 15-0750, Order No. OT-4224.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

CLAIMS

16. (Amended) An elevator door system comprising:

an elevator car having a front face defining a door opening;

at least one elevator door coupled to the front face of the elevator car for movement between an open position exposing the door opening and a closed position covering the door opening;

a first sheave and second sheave disposed on the elevator car;

a rope forming a closed loop about the first and the second sheaves wherein the door is attached to the rope; and

at least one flat drive motor disposed on a front portion of the elevator car and integrated onto one of the sheaves such that the drive motor is drivingly coupled to the rope for moving the elevator door between the open and the closed positions[wherein said flat drive motor comprises a gear mounted integral thereto for reducing the speed of the sheave].